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THE third annual issue of the volume on 'Meteorology' of the International Catalogue of Scientific Literature, dated October, 1905, contains chiefly titles belonging to the year 1903 and the earlier part of 1904. The number of pages is 235, as against 296 in the second annual issue (1902) and 184 in the first. Such a bibliography as this, unsatisfactory as it is in some respects, is certainly a very great help to the working meteorologist and climatologist.

OBSERVATIONS at the meteorological observatory at Perpignan during the solar eclipse of August 30, last, showed a fall of 6.7° in temperature; a rise of 12 per cent. in relative humidity; no 'eclipse wind,' but rather a calm (*Ciel et Terre*, December 16, 1905).

REFERENCE has been made in SCIENCE to the work carried out by the Blue Hill Observatory staff at St. Louis in 1904 with the aid of *ballons-sondes*. Mr. A. Lawrence Rotch, in the *Proceedings of the American Academy of Arts and Science*, Vol. XLI., No. 14, December, 1905, describes this investigation under the title 'On the First Observations with Registration Balloons in America.'

R. DEC. WARD.

BOTANICAL NOTES.

BOTANICAL ARTICLES IN RECENT PERIODICALS.

IN the *Iowa Naturalist*, for October, R. I. Cratty monographs the *Juncaceae* of Iowa, distinguishing nine species of the genus *Juncus*, and two of *Juncoides*. In the same number, T. J. Fitzpatrick publishes his treatment of the *Melanthaceae* of Iowa, in which he includes one species of *Zygadenus*, one of *Melanthium*, one of *Veratrum*, and three of *Uvularia*.—'The Willows of Ohio' is the title of a monograph by R. F. Griggs in the *Proceedings of the Ohio State Academy of Science* (pt. 6, Vol. IV.). It covers fifty-eight pages and includes keys, descriptions and half-tone reproductions of photographs by means of which the twenty-two species and varieties are well distinguished.—F. L. Sargent's articles, 'Lichenology for Beginners,' published in the *Bryologist* in 1905, have now been issued as a twenty-page pamphlet. It presents in

simple language the essential structural facts in regard to lichens. The text is made still plainer by a number of cuts of fruits and spores. The pamphlet closes with a useful artificial key to the common eastern species.—It is a pleasure to record the completion (December, 1905) of Forbes and Hemsley's 'Enumeration of all the Plants known from China proper, Formosa, Hainan, Corea, the Luchu Archipelago, and the Island of Hong-kong, together with their Distribution and Synonymy,' which has been in course of publication in the *Journal of the Linnean Society* for many years. The enumeration contains 8,271 species, of which 4,230 are not known to occur outside of the Chinese empire. It is estimated that the total number of species when known, will reach at least twelve thousand.—In the *Records of the Botanical Survey of India* (Vol. IV., No. 2), Sir J. D. Hooker publishes an epitome of the British Indian species of *Impatiens*. He records sixty-three species from the eastern Himalayas from central Nepal to Upper Assam, and fifty-two species from the Burmese region. The well-known cultivated species, *Impatiens balsamina*, occurs wild in both regions.—Engler's 'Pflanzenreich' has reached the twenty-second 'heft' which is devoted to the family *Primulaceae*, elaborated by F. Pax and R. Knuth. The 530 species are assigned to twenty-two genera, in five tribes. Of the latter, the tribe *Androsaceae* is by far the largest, containing 361 species. The larger genera are *Primula* with 208 species; *Androsace*, 84; *Dodecatheon*, 30; *Cyclamen*, 16; *Lysimachia*, 110; and *Anagallis*, 24. The treatment is conservative, both as to generic and specific limitations. No new genera are set up, and few new species are described. However, when some modern species-maker gets into the family, he'll find an abundance of varieties ready to his hand for elevation to specific rank.

CRYPTOGAMAE FORMATIONUM COLORADENSIIUM.

FOUR years ago F. E. and E. S. Clements issued their 'Herbaria Formationum Coloradensium,' consisting of about six hundred sheets of specimens of higher plants, ar-

ranged so as to illustrate the vegetative formations of the Pike's Peak region of Colorado. Every set was promptly taken, showing that there is a demand among botanists for something more than the old-time collections of mere specimens. This fact has encouraged the authors to begin the publication of a similar set of lower plants, under the title of 'Cryptogamae Formationum Coloradensium,' centuries I. and II. of which were issued to subscribers some months ago. This is apparently the first serious attempt to treat adequately with respect to their ecological relations the lower plants (cryptogams) of a particular region. The centuries thus far issued include of Pyrenomycetaceae 50 sheets; Fungi Imperfecti, 19; Discomycetaceae, 62 (23 'lichens'); Uredineae and Ustilagineae, 24; Basidiomycetaceae, 39; and Musci, 6. Three new genera and twelve new species are represented. With the specimens are forty photographs, consisting of plant portraits, and views of fungus and moss communities.

RECENT BOTANICAL BULLETINS.

AMONG the recent botanical bulletins may be noticed Kellerman and Robinson's 'Inoculation of Legumes' (Farmers' Bulletin No. 240, U. S. Department of Agriculture), in which directions are given for the practical use of cultures of nitrogen-fixing bacteria. The conditions under which soil inoculation is desirable or undesirable are clearly set forth for the guidance of the farmer.—The 'Wild Medicinal Plants of the United States' are brought together in a useful annotated alphabetical list by Alice Henkel (in Bulletin No. 89, of the Bureau of Plant Industry). Brief descriptions are given, with the range of each species, the scientific and common names, and the family to which each belongs.—The same author discusses 'Peppermint' in Pt. III. of Bulletin No. 90 of the Bureau of Plant Industry, and Albert C. Crawford, 'The Poisonous Action of Johnson Grass' (*Sorghum halapense*) in Pt. IV. of the same bulletin. Apparently this grass must now be added to the already considerable number of plants which produce hydrocyanic acid in poisonous quantities under certain conditions.—In Cir-

cular No. 36 of the Forest Service, Gifford Pinchot tells what the service is, and how it deals with forest problems. Its perusal will no doubt be quite enlightening to many people.—Suggestive and helpful are Chapman's 'Working Plan for Forest Lands in Berkeley County, South Carolina' (Bull. No. 56), and Clothier's 'Advice for Forest Planters in Oklahoma and Adjacent Regions' (Bull. No. 65) in which photographs and maps help the carefully written text.—Of more direct interest to the botanist, is Kellogg's 'Forest Belts of Western Kansas and Nebraska' (Bull. No. 66) in which he discusses the distribution and natural extension of the forest belts in these two states on the great plains.—In the Report of the Experiment Station Committee of the Hawaiian Sugar Planters' Association, for the year 1905, a considerable amount of space is given to the newly established division of pathology and physiology, to the directorship of which Dr. N. A. Cobb (of New South Wales) was called less than a year ago. The laboratory with some of its peculiar apparatus and mountings is described, and a program of the work to be undertaken is given with some detail. With such an outfit, and apparently with ample funds, we may look for good work from Dr. Cobb and his corps of assistants.

THE KEW PUBLICATIONS.

IN the last Bulletin of Miscellaneous Information (No. 1, 1905) of the Royal Botanic Gardens of Kew, is given a 'select list' of the works prepared by members of the staff or in collaboration with such members. About eighty titles are cited, ranging from such serials as *Curtis's Botanical Magazine*, and the *Annals of Botany*, to the standard works like *Flora Australiensis* (7 vols.), *Biologia Centrali-Americana* (5 vols.), *Genera Plantarum* (3 vols.), Sachs's *Text-Book of Botany*, and finally to thin pamphlet hand-lists and guide books. It is a most useful and instructive list, especially to botanists who are trying to fill their libraries with desirable books. Incidentally it will serve to show what a center of botanical activity these gardens have been during the past forty or fifty years. A very

useful feature of the list is the citation in every case of the time and place of publication, and the name of the publisher.

MONTANA BOTANY.

WITHIN the past few months Professor Blankinship has published numbers 1, 2 and 3 of the 'Montana Agricultural College Science Studies,' including three botanical papers of much more than usual interest. The first of these, 'A Century of Botanical Exploration in Montana,' includes a chronological list of seventy-four collectors who have worked in the state, beginning with Meriwether Lewis, of the Lewis and Clarke expedition in 1805 and 1806, and ending with Millie M. Smith and Arthur Lehman in 1904. The bibliography includes eighty-three titles.

The second paper is a 'Supplement to the Flora of Montana,' and includes additional species, and corrections of the list given in Dr. P. A. Rydberg's 'Catalogue of the Flora of Montana and the Yellowstone National Park' (Memoirs N. Y. Bot. Gard., 1900). There are about three hundred and eighty-six additions, seventy-eight corrections and twenty-eight new species and varieties. Apparently the author has been conservative in his treatment of both old and new species, and apparently the corrections have been made with care. This list is a valuable and notable addition to our knowledge of Montana flowering plants, and must prove very helpful when the descriptive botany of the region comes to be written.

The third paper consists of lists of the common names of Montana plants. Every plant is entered twice, once alphabetically under its common name, and again in a similar list in which the scientific names are arranged alphabetically. It is a valuable contribution to the botany of common names, and serves very well to show how variable and unreliable such names are.

CHARLES E. BESSEY.

THE UNIVERSITY OF NEBRASKA.

THE MAGNETIC SURVEY OF THE PACIFIC OCEAN: SECOND CRUISE.

THE Yacht *Galilee*, engaged in the magnetic survey of the Pacific Ocean under the

auspices of the Carnegie Institution of Washington, left San Diego, California, on March 2, to enter upon her second cruise. She is expected to make the following circuit of about 20,000 miles by the end of this year: San Diego, Fanning Islands, Samoan Islands, Fiji Islands, Marshall Islands, Guam, Yokohama, Aleutian Islands and back again to San Diego.

It was necessary to reorganize the scientific personnel as those of the former staff belonging to the U. S. Coast and Geodetic Survey were obliged to return to their official duties at the expiration of their furloughs. The command of the vessel has accordingly now been entrusted to Mr. W. J. Peters, formerly of the astronomical and topographical corps of the U. S. Geological Survey. He has had considerable experience in difficult geographical work, was second in command and in charge of the scientific work of the recent Ziegler Polar Expedition as the representative of the National Geographic Society.

In connection with the latter expedition, Mr. Peters made a valuable series of magnetic, meteorological and tidal observations at Teplitz Bay, Franz Joseph Land.

The other members of the present staff are: Mr. J. P. Ault, magnetic observer (likewise a member of the former staff), Mr. J. C. Pearson, magnetic observer (formerly instructor of physics at Bowdoin College) and Dr. H. E. Martyn, surgeon and recorder. The sailing master is Captain J. T. Hayes. While the vessel was at San Diego some additional changes and improvements were made both in the ship and in the instruments employed. Sufficient funds have been allotted so as to permit carrying on this work continuously throughout the year.

L. A. BAUER.

DEPARTMENT TERRESTRIAL MAGNETISM,

March 10, 1906.

UNIVERSITY CONTROL.

IN the colleges from which our universities have developed the problem of administration was comparatively simple. The faculty and the president met weekly and consulted daily; each was familiar with the work of the entire